

II. General Remarks Concerning This Response

Claims 8, 9, 13, 15, 18-20, 24, 26, 29-31, and 33 are currently pending in the present application. Claims 8, 19, and 30 have been amended in this response; no claims have been added; and claims 1-7, 10-12, 14, 16, 17, 21-23, 25, 27, 28, and 32 have been canceled. Reconsideration of the claims is respectfully requested.

The Office action objected to Figures 3 and 4 being mislabeled in the drawings; another copy of formal drawings has been submitted.

III. 35 U.S.C. § 103—Obviousness using Minami et al.

Claims 8, 10-14, 16-19, 21-25, 27-30, 32, and 33 are rejected under 35 U.S.C. § 103(a) as unpatentable over Minami et al., "Special effect device, image processing method, and shadow generating method", U.S. Patent Number 6,014,472, filed 11/14/1996, issued 01/11/2000, in view of Oka et al., "Three-dimensional image display system", U.S. Patent Number 4,600,200, filed 01/03/1983, issued 07/15/1986. Claims 9, 20, and 31 were rejected under 35 U.S.C. § 103(a) as unpatentable over Minami et al. and Oka et al. and further in view of Robertson et al., "Moving an object in a three-dimensional workspace", U.S. Patent Number 5,513,303, filed 08/02/1990, issued 04/30/1996. Claims 15 and 26 were rejected under 35 U.S.C. § 103(a) as unpatentable over Minami et al. and Oka et al. and further in view of Farrell, "Night vision backlighting system for liquid crystal displays", U.S. Patent Number 5,143,433, filed 11/01/1991, issued 09/01/1992. These rejections are traversed.

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The rejections argue for a hypothetical system that primarily relies on a combination of the disclosures of Minami et al. and Oka et al. to teach a method for generating realistic shadows in a three-dimensional coordinate space using complex geometry with computations involving an artificial light source point, object projections, viewer's perspective point, view/display plane, etc.. The determination of shadows through these known methods are computationally expensive. In contrast, the present invention is directed to a technique that generates shadows in a quick and efficient manner that produces shadows in a so-called 2-1/2 dimensional coordinate system for primarily planar objects that is more realistic than drop shadows that are found in a simple two-dimensional system yet much more quickly produced than shadows in a full three-dimensional system as disclosed in the applied prior art.

Each of the independent claims that remain pending after the amendments in this response have been amended to focus more specifically on the manner in which a drop shadow can be dynamically generated in two dimensions. The amended independent claims now include a displacement step or means in which a shadow object that has the same dimensions and coordinates of a first object (an object that is to create a shadow upon a second object) is displaced along an x-dimension or a y-dimension of the three-dimensional coordinate space by a user-configurable displacement distance value. The amended independent claims also include a translation step or means in which the shadow object is translated in accordance with a calculated translation value that is directly proportional to a z-dimensional difference between the first object and the second object; the translation occurs along the x-dimension or the y-dimension within the three-dimensional coordinate space

that was not used to displace the shadow object, and the translation of the shadow object and the displacement of the shadow object occur along different dimensions in either order, possibly in accordance with a user-configurable parameter.

While Minami et al. may disclose that a shadow object (shadow signal in Minami et al.) can be translated in both an x-dimension and a y-dimension, Minami et al. computes a shadow in a realistic fashion. However, the present invention is directed to a technique that produces a somewhat realistic shadow while also producing a shadow quickly and efficiently, thereby giving a user a more realistic user interface than a simple GUI but less realistic than a full 3-D user interface. Minami et al. does not disclose that a translation of the shadow object along one dimension (either the x-dimension or the y-dimension) is somewhat realistically computed in accordance with a z-dimensional distance between the first object and the second object while a translation of the shadow object along an alternative dimension (either the x-dimension or the y-dimension, choosing whichever dimension was not employed in the first translation step) is statically defined by a user-configurable parameter value. The combination of these claimed features are not disclosed in Minami et al. nor any of the other prior art references. Moreover, this combination of claimed features is not presented in the hypothetical system of the combined teachings as argued by the rejections.

Furthermore, it would not have been obvious to one having ordinary skill in the art at the time of the invention to modify Minami et al., Oka et al., any of the other prior art references, nor a hypothetical combination of the prior art teachings to include the features of the present invention.

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If a shadow is produced as argued by the rejection, then a shadow is produced that is translated in all dimensions as required by the lighting and the geometry of the objects within the coordinate system. Hence, any modification to the hypothetical system to include a feature in which the shadow is produced by translating in two different manners along two different dimensions, as required by the amended claim language, would appear to necessitate a compensation of the generated shadow object to accommodate the effect as required by the present invention. However, as stated in MPEP § 2143.01:

If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Changing the shadow generation process in the system of Minami et al. would completely change the system's method of operation and make it unsuitable for its intended purpose. Thus, the present invention would not have been obvious in view of the applied prior art.

The examiner bears the burden of establishing a *prima facie* case of obviousness based on the prior art when rejecting claims under 35 U.S.C. § 103. *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992). Only when a *prima facie* case of obviousness is established does the burden shift to the applicant to produce evidence of nonobviousness. *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444

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(Fed. Cir. 1992); *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). If the Patent Office does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to the grant of a patent. *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992); *In re Grabiak*, 769 F.2d 729, 733, 226 U.S.P.Q. 870, 873 (Fed. Cir. 1985). In response to an assertion of obviousness by the Patent Office, the applicant may attack the Patent Office's *prima facie* determination as improperly made out, present objective evidence tending to support a conclusion of nonobviousness, or both. *In re Fritch*, 972 F.2d 1260, 1265, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992).

With respect to the claims, Minami et al. and/or Oka et al., possibly in combination with other prior art references, do not disclose the claimed invention nor provide any suggestion to motivate one having ordinary skill in the art to modify the prior art to reach the claimed invention. In general, the rejection does not point out the necessary teachings, suggestions, or incentives to reach the claimed invention. Hence, the rejection of the claims does not establish a *prima facie* case of obviousness based on the prior art. Therefore, the rejection of the claims under 35 U.S.C. § 103(a) has been shown to be insupportable, and these claims are patentable over the applied prior art. Applicant requests the withdrawal of the rejection.

IV. Conclusion

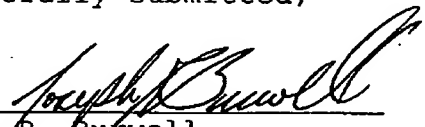
It is respectfully urged that the present application is patentable, and Applicant kindly requests a Notice of Allowance.

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For any other outstanding matters or issues, the examiner is urged to call or fax the below-listed telephone numbers to expedite the prosecution and examination of this application.

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Respectfully submitted,



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Joseph R. Burwell
Reg. No. 44,468
ATTORNEY FOR APPLICANT

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Law Office of Joseph R. Burwell
P.O. Box 28022
Austin, Texas 78755-8022
Voice: 866-728-3688 (866-PATENT8)
Fax: 866-728-3680 (866-PATENT0)
Email: joe@burwell.biz

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